CLAIMS

1. Optical information recording media, having:

a translucent substrate on which are formed a pregroove and land pre-pits in the land portions positioned on the left and right of the pregroove;

an optical recording layer, provided on the substrate, enabling recording by recording light; and

a light reflecting layer, provided on the optical recording layer, which reflects said recording light,

and enabling recording, by irradiation of said optical recording layer with said recording light through said substrate, of information which can be read optically, the optical information recording media being characterized in that,

said land pre-pits are continuous along said pregroove and are made to protrude in the radial direction of said substrate, and

when e is the base of natural logarithms, then the inside edge portions of the inside protruding portion and the outside edge portions of the outside protruding portion of said land pre-pits are positioned within the range of the spot diameter in the $1/e^2$ portion of the Gaussian energy distribution of the spot due to said recording light.

2. The optical information recording media according to Claim 1, characterized in that said inside edge portions and

said outside edge portions of said land pre-pits are positioned so as to converge toward the center position of said spot due to said recording light.

3. The optical information recording media according to Claim 1, characterized in that, when for said land pre-pits L_{in} is the distance between said two inside edge portions of said inside protruding portion and L_{out} is the distance between said two outside edge portions of said outside protruding portion, these distances L_{in} and L_{out} are made smaller than said spot diameter in the $1/e^2$ portion of said Gaussian energy distribution of said spot due to said recording light.

4. The optical information recording media according to Claim 1, characterized in that, for said land pre-pits, in addition to said inside edge portions and said outside edge portions, the most prominently protruding inside edge portion of said inside protruding portion and the most prominently protruding outside edge portion of said outside protruding portion are positioned within the range of said spot diameter in the $1/e^2$ portion of said Gaussian energy distribution of said spot due to said recording light.

5. The optical information recording media according to Claim 1, characterized in that said inside edge portions and said outside edge portions of said land pre-pits are positioned within the range of the spot diameter in the 1/e portion of said Gaussian energy distribution of said spot due to said recording light.

6. Optical information recording media, having:

a translucent substrate on which are formed a pregroove and land pre-pits in the land portions positioned on the left and right of the pregroove;

an optical recording layer, provided on the substrate, enabling recording of recorded pits by recording light; and,

a light reflecting layer, provided on the optical recording layer, which reflects said recording light,

and enabling recording, by irradiation of said optical recording layer with said recording light through said substrate, of information which can be read optically, the optical information recording media being characterized in that,

said land pre-pits are continuous along said pregroove and are made to protrude in the radial direction of said substrate, and

when L_{in} is the distance between two inside edge portions of the inside protruding portion of said land pre-pits, L_{out} is the distance between two outside edge portions of the outside protruding portion of said land pre-pits, and T is the basic length representing the length of said recorded pits, these distances L_{in} and L_{out} are within the range 3T to 6T.

7. The optical information recording media according to Claim 6, characterized in that said distances L_{in} and L_{out} are in the range 3.36T to 5.22T.

8. The optical information recording media according to Claim 6, characterized in that said distance L_{in} is in the range 3T to 4T.

9. The optical information recording media according to Claim 6, characterized in that said distance L_{in} is in the range 3.36T to 3.73T.

10. The optical information recording media according to Claim 6, characterized in that said distance L_{out} is in the range 4T to 6T.

11. The optical information recording media according to Claim 6, characterized in that said distance L_{out} is in the range 4.85T to 5.22T.

12. Optical information recording media, having:

a translucent substrate on which are formed a pregroove and land pre-pits in the land portions positioned on the left and right of the pregroove;

an optical recording layer, provided on the substrate, enabling recording by recording light; and

a light reflecting layer, provided on the optical recording layer, which reflects said recording light,

and enabling recording, by irradiation of said optical recording layer with said recording light through said substrate, of information which can be read optically, the optical information recording media being characterized in that,

when L_{in} is the distance between two inside edge portions of said land pre-pits, and L_{out} is the distance between two outside edge portions of said land pre-pits, the distances L_{in} and L_{out} are such that 0.40 μm ≤ L_{in} ≤ 0.80 μm and 0.40 μm ≤ L_{out} ≤ 0.80 μm.

13. The optical information recording media according to Claim 12, characterized in that said distances L_{in} and L_{out} are such that 0.45 μm ≤ L_{in} ≤ 0.50 μm and 0.65 μm ≤ L_{out} ≤ 0.70 μm.

14. The optical information recording media according to Claim 12, characterized in that said land pre-pits are formed in a meandering shape.

15. Optical information recording media, having:

a translucent substrate on which are formed a pregroove and land pre-pits in the land portions positioned on the left and right of the pregroove;

an optical recording layer, provided on the substrate, enabling recording by recording light; and

a light reflecting layer, provided on the optical recording layer, which reflects said recording light,

and enabling recording, by irradiation of said optical recording layer with said recording light through said substrate, of information which can be read optically, the optical information recording media being characterized in that,

said land pre-pits are continuous along said pregroove and are made to protrude in an arc shape in the radial direction of said substrate, and

when R_{in} is the inside protruding length in the radial direction on the inside of the arc shape and R_{out} is the outside protruding length in the radial direction on the outside of the arc shape, the lengths R_{in} and R_{out} are such that $0.120\ \mu m \leq R_{in} \leq 0.182\ \mu m$ and $0.100\ \mu m \leq R_{out} \leq 0.250\ \mu m$.

16. The optical information recording media according to Claim 15, characterized in that said lengths R_{in} and R_{out} are such that $0.140\ \mu m \leq R_{in} \leq 0.173\ \mu m$ and $0.100\ \mu m \leq R_{out} \leq 0.192\ \mu m$.

17. The optical information recording media according to Claim 15 or Claim 16, characterized in that said lengths R_{in} and R_{out} are such that $R_{in} \leq R_{out}$.

18. The optical information recording media according to Claim 15, characterized in that said lengths R_{in} and R_{out} are such that $0.140\ \mu m \leq R_{in} \leq 0.156\ \mu m$ and $0.156\ \mu m \leq R_{out} \leq 0.192\ \mu m$.

19. The optical information recording media according to Claim 15, characterized in that said lengths R_{in} and R_{out} are such that $0.120\ \mu m \leq R_{in} \leq 0.130\ \mu m$ and $0.180\ \mu m \leq R_{out} \leq 0.244\ \mu m$.

20. The optical information recording media according to Claim 15, characterized in that, when λ is the wavelength of said recording light, the optical depth in the unrecorded state in said pregroove is from $\lambda/8$ to $\lambda/5$.

21. The optical information recording media according to Claim 15, characterized in that said optical recording layer comprises light absorbing material capable of absorbing said recording light.